

REMARKS

Applicants hereby affirm the telephonic election of the invention of Group I, Claims 1-19, without traverse. Applicants request rejoinder of the invention of Group II, Claim 20, upon allowance of the invention of Group I.

The informalities objected to in claims 1, 4, and 14 have been corrected as apparent from the claim additions and deletions.

Claim 1 has been amended relative to the following prior art rejection by inserting the word "fixed" in claim 1, line 2 based on the "fixed" language in the examples and by amending the limitation of M^+ to groups VIa and VIIa, based on original claim 8, which has been canceled.

Claims 1-7, 14, 16-19 stand rejected under 35 U.S.C. 102(b) as being anticipated by Nishikawa et al. (McElroy English translation of JP Publication No. 2002-038158), as evidenced by Swanson Technologies (The Periodic Table of the Elements). According to the Examiner:

Regarding claims 1-6, 14, Nishikawa has a multilayer film comprising a substrate bearing an aligned (oriented) liquid crystal layer wherein the liquid crystal layer contains a salt [0008] represented by the formula (I) of Nishikawa below [0009].

R^1 is an aliphatic group with 1 to 30 carbon atoms [0010] which overlaps the claimed straight or branched group of Applicant's R (claim 1), alkyl group of 1-25 carbon atoms of Applicant's R (claim 2) and alkyl group of 1-6 carbon atoms of Applicant's R (claim 3). N^+ is a cation chosen from period group Va of the Periodic Table of Elements, and thus corresponds to M^+ of Applicant, as evidence by Swanson Technologies.

Swanson Technologies shows that N is a Va periodic group element. N^+ being a cation, it follows that X^- is the counterion for the salt. Therefore the pyridinium quaternary salt [0008] is an onium salt by Applicant's definition.

As shown above, N^+ of Nishikawa = M^+ of Applicant, and is a member of a 6-membered aromatic group, which is treated as Applicant's R group comprising a 5-membered ring fused to the N cation (claims 4, 14). An aromatic group is also known as an aryl group (claim 5), which is a genus of the heteroaryl group (claim 6) containing the N -atom in formula I above.

According to the McElroy Translation of JP 2002-038158, a pyridinium quaternary salt is added to the anisotropic layer of Nishikawa. The present amendment serves to limit the claims to onium salts of groups VIa and VIIa. There is no suggestion in Nishikawa that such compounds would be expected to affect the desired orientation.

Claims 1, 8-10, 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Murai et al. (US 5,963,290), as evidenced by Swanson Technologies. According to the Examiner:

Regarding claims 1, 8-10, Murai has a multilayer film comprising a substrate (column 9, lines 35-45) bearing an aligned liquid crystal (LC) layer (column 7, lines 25-30). Murai teaches the addition of a monomer or oligomer to stabilize the tilt (rising direction) of the liquid crystal (LC) molecules (column 7, lines 16-21), which requires the use of a photo (light) initiator (column 9, line 1). Examples of the initiator are sulphonium and selenium salts (column 9, lines 7-12), wherein the sulphonium and selenium cations are from group VIa of the Periodic Table (claim 8); and iodonium salts (column 9, lines 7-12), wherein the iodonium cation is from group VIIa of the Periodic Table (claims 9-10), as evidenced by Swanson Technologies.

Swanson Technologies shows that sulphur (S), and selenium (Se), are elements in group VIa of the Periodic Table, and that iodine (I) is in group VIIa of the Periodic Table.

Murai fails to teach the specific structure of the onium salt, which is the genus of the sulfonium, selenium and iodonium salt species. However, the claimed onium salt structure of $(R)_bM^+X^-$ wherein R is an aromatic group and b is 2 or 3, when used as a photoinitiator, is well known by one of ordinary skill in the art at the time the invention was made, as a common structure for the onium salt of each of the particular groups in the Periodic Table, as evidenced by Glover.

There is a key distinction between the claimed invention and the teachings of the Murai reference. Murai's liquid crystal layer is a switchable fluid LC cell in which the molecules are free to reorient in order to form an image through selectively allowing the passage of light to individual pixels. It is essential to the function of a liquid crystal cell that the liquid crystal molecules be free to reorient in response to electric stimuli so that a variable image can be displayed through switching of the pixels.

In contrast, the liquid crystal layer of the invention is an aligned or fixed layer. The liquid crystal molecules are not free to reorient and do not perform the imaging function. The aligned or fixed layer of the present invention is designed to compensate for the shortcomings of the typical LC cell. To compensate, the layer is oriented in a certain direction relative to one or more optical elements that it is correcting for, such as the LC cell or a polarizing plate, and then the molecules are then permanently fixed into place. On the other hand, Murai includes certain polymeric materials in the liquid crystal cell itself in order to help improve uniformity among molecules for the black/white orientation of the LC molecular arrangements. See col 1/line 18; col. 6/ line 1; col. 7/line 17; (“Particularly, it is desirable to inject LC containing a monomer or an oligomer between the substrates...”); col. 10/line 54-58; claim 2. There is no mention in Murai of any compensator arrangement.

In view of the foregoing amendments and arguments, the Examiner is respectfully requested to withdraw the outstanding rejection and to pass the subject application to Allowance.

Respectfully submitted,



Attorney for Applicants
Registration No. 25,518

Arthur E. Kluegel/dlm
Telephone: 585-477-2625
Facsimile: 585-477-1148
Enclosures

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.